stricture with sounds, bougies, or Hegar dilators over a considerable period of time. This operation is carried out after a local anesthetic has been applied to the urethral mucous membrane. The dilating instruments should be generously lubricated before insertion and the largest instrument passed at any sitting should be left in place for from ten to fifteen minutes. The size of the dilators used must be determined each time by the degree of pain caused. It is necessary to avoid any severe pain when the treatments are so frequently repeated, as well as to avoid considerable trauma. At first daily treatments are given, but later the intervals between sittings can be increased, and the treatments should be continued over a period of several months. These patients ought to be warned that recurrences are common, and that for this reason they are to return several times a year for dilatation.

PATHOLOGY AND BACTERIOLOGY

UNDER THE CHARGE OF

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On the Claim that Some Typhoid-Paratyphoid Strains Survive the Milk Pasteurization.—KRUMWIEDE and NOBLE (*Jour. Infect. Dis.*, 1921, 29, 310) found that "there is no evidence that bacilli of the typhoid and paratyphoid group even in small numbers, will survive heating to 60° C., for twenty minutes," suggesting that the apparent heat resistance of the strains reported by Twiss (*Jour. Infect. Dis.*, 1920, 26, 165) was due to the test method employed, namely, the use of cotton plugged flasks submerged to twice the depths of the milk. The authors used 27 typhoid cultures recently isolated from carriers, 7 paratyphoid A, 12 paratyphoid B and 4 enteritidis cultures. Milk was sterilized and 100 cc of it was infected with the cultural growth from two twenty-four hour agar slants suspended in salt solution. The bacterial suspension was added after the milk had reached 60° C., rubber stoppers were inserted, the bottles vigorously shaken and completely submerged in a water bath for fifteen minutes. No bacteria survived a pasteurization period thus limited closely to fifteen minutes at 60° C.

Antirabic Vaccination by Means of Desiccated Virus.—With slight modifications, D'AUNOY (*Jour. Infect. Dis.*, 1921, 29, 261) has employed a desiccated virus prepared according to Harris on account of its capability of production in a short time and preservation over indefinite periods. Full grown, healthy rabbits, averaging 2200 gm. were inoculated into the lateral ventricles after trephining with about 0.004 mg.

of desiccated fixed virus in 1 cc of sterile salt solution. The animal developed symptoms in six or seven days and when complete paresis had intervened, was killed by ether narcosis. The cord and brain were then removed aseptically, and the membranes were stripped off by needles. By grinding with salt solution, the nerve tissue was brought to a coarse paste in a mortar. Carbon dioxide snow was then added with constant mixing and triturating until the mass had solidified. The mass was then placed in a meat grinder and kept at a temperature of about 12° C. for a few hours, a small amount of CO_2 again added and quick grinding accomplished. The ground material was spread in a thin-layer and dried in a Scheibler desiccator at from 12 to 18° C. With a vacuum of 2 mm of mercury, and phosphoric anhydride, complete desiccation was procured in about thirty-six hours. The dried virus was kept in large glass tubes in a dark place at from 10 to 15° C. Control cultures of every batch of virus were instituted. The unit or "minimal infective dose" consists of the least amount of virus which within five days after preparation will cause paresis in a 2400 gm. rabbit on the seventh day following intracerebral injection. A virus containing 300 to 500 "minimal infective doses" per mg. was readily produced. It will lose no infectivity at 10° C. for over two years and will last about three years at 8 to 12° C. Adults were given 11 treatments of a total of 17,750 "minimal infective doses" except in severe head injuries when 15 treatments of a total of 25,750 m. i. d. were administered subcutaneously. Only 1 death following complete treatment is reported in 1538 treated patients; 697 injuries by animals proved to be rabid. No paralysis or other untoward effects were encountered in the treated persons. The author feels that his results "on the basis of comparison with similar reports on the use of the original Pasteur dried cord method, argue for the efficaciousness and safety of the desiccated virus method of prophylactic antirabic vaccination."

Botulism from Cheese.—Evidence that botulism is widely disseminated in this country can be found in the sporadic reports which have appeared in recent years. Although it was once thought that the botulinus toxin was produced only in the presence of meat protein, Dickson was able to find it in the presence of vegetable protein and now NEVIN (*Jour. Inf. Dis.*, 1921, **27**, 226) reports the recovery of both B. botulinus and its toxin from home-made cottage cheese, after the ingestion of which three persons died. Two cases presented paralysis of the muscles of deglutition, suffusion of the face, ptosis, total dilatation and failure of the pupils to react to light and paralysis of the muscles of the throat with difficulty of speech. The third patient was unable to swallow. There was no loss of consciousness or paresis of any other part of the body. Subcutaneous inoculation of 3 cc of an emulsion of the cheese, after forty-eight hours' incubation at 37° C., killed guinea-pigs within thirty-six hours. By anaërobic methods, a Gram-positive, motile, oval, sporebearing bacillus was isolated. No capsule could be demonstrated, gelatin was liquefied slowly and milk coagulated in three days. Many carbohydrates were fermented with the production of gas and the odor of butyric acid. A potent toxin was produced on a peptone-free medium. Guinea-pigs